

SUPPORTING DOCUMENT I

Education & Outreach Program

Introduction:

The Education and Outreach Program plays an important role in the Office of Water Quality. An informed citizenry is one of most important tools in maintaining and improving water quality. As more citizens move into Chesterfield County, our environmental resources are impacted by the increase in impervious surfaces; storm flows and lawn care practices. The Education and Outreach Program can be categorized in the following areas: general, targeted and volunteer activities. General education and outreach occurs on a daily basis as staff interacts with the public. All staff members utilize the OWQ publications and website as tools. The OWQ receives over 1000 citizen requests per year. Other general outreach occurs by participating in events such as Earth Day Celebrations, attending homeowner's association meetings and water quality monitoring day. Targeted outreach focuses on a specific audience or a specific issue. Local educators are an example of a targeted audience that the Office of Water Quality often serves. Other targeted outreach topics have included neighborhoods that exhibit high levels of nutrients, specific watersheds with issues and perennial flow determination with the private environmental community. Finally, volunteer activities are available for citizens who show an interest in the environment and water quality and want to actively participate in a program. These programs include citizen monitoring, storm drain marking and cleanup efforts.

General Education & Outreach:

Publications:

The Office of Water Quality developed the Water Quality Watch Fact Sheet series in 1997 for general outreach and education that describe a variety of surface water quality issues in Chesterfield County. The purpose of the fact sheets is to promote awareness of Chesterfield's water bodies, water quality problems, and measures the county is taking to address these problems. The fact sheets target both the general population as well as the business community. In addition to the original series, the Resource Protection Area Restoration Guide was created in 2004. This guide includes step-by-step instructions on the proper restoration of a riparian zone that has been disturbed. This guide contains information about Resource Protection Areas (RPAs), planting guidelines as well as an approved plant list. The manual and plant list was developed with input from representatives of the Chesapeake Bay Local Assistance Department, The Virginia Department of Forestry, and Chesterfield County. The manual was developed as a part of a Small Watershed Grant from the Fish & Wildlife Foundation. A series of "Fast Enviro-Facts" fact sheets was also created in 2004 to answer questions commonly asked by citizens. These fact sheets addressed issues such as iron bacteria blooms, foam in creeks and why tree tubes are important in RPA plantings. The Office of Water Quality partners with several other organizations for publications. For proper lawn care techniques relating to water quality, the Chesterfield County Cooperative Extension Service provides numerous brochures and fact sheets. The Friends of Chesterfield's Riverfront publishes a brochure with public access points to water and the Friends of the Lower Appomattox River recently developed a similar publication for the Appomattox River. The Office of Water Quality has found much success in partnering with other organizations for the development & publication of print and internet resources. Several other publications are available from the Office of Water Quality, but are discussed in the "Targeted Education & Outreach Section". A list of all water quality publications can be found in the table on the following page.

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Material	Type	Lead Group	Target Group
Chesterfield County Office of Water Quality website: http://www.chesterfield.gov/communitydevelopment/waterquality/	Website	Office of Water Quality	General public
<i>Chesterfield County Resource Protection Area Restoration Guide</i>	Booklet	Office of Water Quality	General public
<i>Chesterfield County Resource Protection Area Restoration Guide</i> <i>Chesterfield County Stormwater Management Program</i> <i>Chesapeake Bay Resource Protection Areas</i> <i>The Streams of Chesterfield County</i> <i>Homeowners Guide to Flood Plain Management</i> <i>Business & Industry Guide to Chesterfield County's Illicit Discharge Ordinance</i> <i>Household Guide to Chesterfield County's Illicit Discharge Ordinance</i> <i>Chesterfield County's Stormwater Drainage System</i>	Fact Sheet	Office of Water Quality	General public
<i>What is this Orange Slime in my Creek?</i> <i>What is this Foam in my Creek?</i> <i>What are those Tubes in the Field?</i>	Fast Enviro Facts Sheet	Office of Water Quality	General public
<i>Pocochock Creek Community Partnership</i>	Brochure	Office of Water Quality	Watershed Citizens
<i>Don't Feed the Lake</i>	Brochure	Office of Water Quality	Citizens who live near lakes
Storm Drain Markers	Plastic marker adhered to storm drains	Office of Water Quality	General public
EcoMasters	Interactive CD	Office of Water Quality	6 th grade lead science teachers
<i>Watersheds & Water Quality in Chesterfield County</i>	Power Point Presentation	Friends of Chesterfield's Riverfronts	6 th grade students
Chesterfield Extension Website: http://www.chesterfield.gov/HumanServices/ExtensionServices/exthome.asp	Website	Chesterfield Extension	General Public
<i>Six Steps to Cleaner Water</i> (lawn & home)	Brochure	Chesterfield Extension	General Public
<i>Home Landscape Practices to Protect Water Quality</i>	Brochure	Chesterfield Extension	General Public
<i>Chesterfield County – Did you Know?</i> (Fact sheet on lawn care)	Fact Sheet	Chesterfield Extension	General Public
Lawn Care Clinics (5 clinics in addition to being online)	Power Point Presentation	Chesterfield Extension	Interested Public

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Website:

The Chesterfield County Office of Water Quality website, which can be found at <http://www.chesterfield.gov/communitydevelopment/waterquality>, also serves as a valuable tool for general education & outreach. The above-mentioned publications are available online in a PDF format, as well as general water quality information, technical reports and staff contacts. Many citizens utilize the website to gather information related to various ordinances or to view water quality data.

Activities:

The Office of Water Quality staff participates in many activities that serve as general outreach and education. These activities range from appearing on local cable television shows to participating in regional educational events such as earth day and Virginia Water Quality Monitoring Day. Written press is another general educational outlet use at both the local and regional level. Staff also responds to citizen inquiries, both via the telephone and by making field visits. The staff also will attend various civic meetings as requested such as homeowner association meetings.

Targeted Education & Outreach:

Targeted education & outreach occurs for several reasons. There may be a specific audience, such as local educators, that are seeking specific information. Another type of targeted education & outreach occurs as a result of a situation or event. The Perennial Determination Workshop would be an example of this type of targeted education. Whatever be the case, targeted education & outreach is very valuable and results are often immediate and measurable after the education event occurs.

Educator Training:

The Office of Water Quality, in partnership with Friends of Chesterfield's Riverfront plays an active role with the Chesterfield Public School System. Both organizations work with the Science Lead Instructors in developing curriculum, the grants administrator in securing funding and one on one with teachers. Each year, the OWQ and Friends trains teachers in water related SOLs at teacher in-service workshops. These organizations also assist teachers in developing Chesterfield related lessons regarding water quality and give advise on local field trips. Thousands of dollars have been secured in grant funding to assist the CCPS with water quality education. One example of a recent grant was the 3-year BayScaping initiative funded by NOAA-B-WET. This grant funded the installation of a native BayScape at all elementary & middle schools in the county as well as curriculum development on how to utilize the areas as a meaningful watershed experience (MWE). In addition to technical expertise and grant funding, the OWQ also loans equipment to teachers to enhance their curriculum. The Enviroscape, which depicts non-point pollution and water quality monitoring equipment are among the most popular items on loan. By working with the local educators, the OWQ is able to reach perhaps the largest and most important audience in Chesterfield County, the youth.

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Targeted Watersheds: Pocoshock Creek:

The Office of Water Quality performs physical, chemical and biological stream sampling in its comprehensive monitoring program, the Watershed Assessment and Stream Protection Program. From this collection of data, stream segments are then categorized into general health parameters ranging from “bad” to “excellent”. After identifying the health of the stream and its watershed, management strategies are applied. Pocoshock Creek was identified as having “poor” health and a Detailed Watershed Investigation was conducted in 2004 to identify the areas of concern. To complement the scientific monitoring and investigation, an educational & outreach component was developed. The “Pocoshock Creek Community Partnership” was formed as a mechanism to communicate with the community members of the watershed, including homeowners and businesses. A brochure was developed and published with funds from the Virginia Department of Conservation and Recreation for this target audience that identifies the limits of the watershed and steps they can take to improve water quality.

Don’t Feed the Lake:

Every water source in Chesterfield County is valuable, but our drinking water sources are especially valuable. A publication titled “Don’t Feed the Lake” was developed in the late 1980’s to inform citizens on how their lawn care practices could affect the water quality of the reservoir. This publication was updated and revised with funds from the Virginia Division of Chesapeake Bay Local Assistance. The development of this brochure was a partnership of the OWQ, the Cooperative Extension Office and the Friends of Chesterfield’s Riverfront. This brochure also has a link to a “Clean Lakes” website hosted by the extension office that provides additional information to interested citizens.

Perennial Stream Determination Workshop:

This workshop was a result of the 2001 revisions to the Chesterfield County Chesapeake Bay Preservation Area Designation and Management Regulations that required field determinations of perennial streams. After the adoption of these revised regulations, the Office of Water Quality identified an area of concern: the inconsistent application of the protocols developed for use in conducting field determinations of water bodies with perennial flow. While workshops and training sessions had been conducted to train staff from localities on the use of these protocols, there had yet to be a training opportunity in Virginia for the consultants who, in most cases, actually perform the determinations. To address this “gap” in training, Chesterfield County’s Office of Water Quality conducted a Perennial Stream Determination Workshop in August 2005. Funding was provided by the Virginia Division of Chesapeake Bay Local Assistance. Dr. James Gregory from the North Carolina State University and the author of the North Carolina Stream Identification Protocol provided detailed training on the use of this field indicator method both the classroom and in the field. Larry Eaton of the North Carolina Division of Water Quality will also assisted by providing training on benthic macro invertebrates. This four-day workshop had 41 attendees from both the private sector as well as localities. Results were immediately noticed by the staff.

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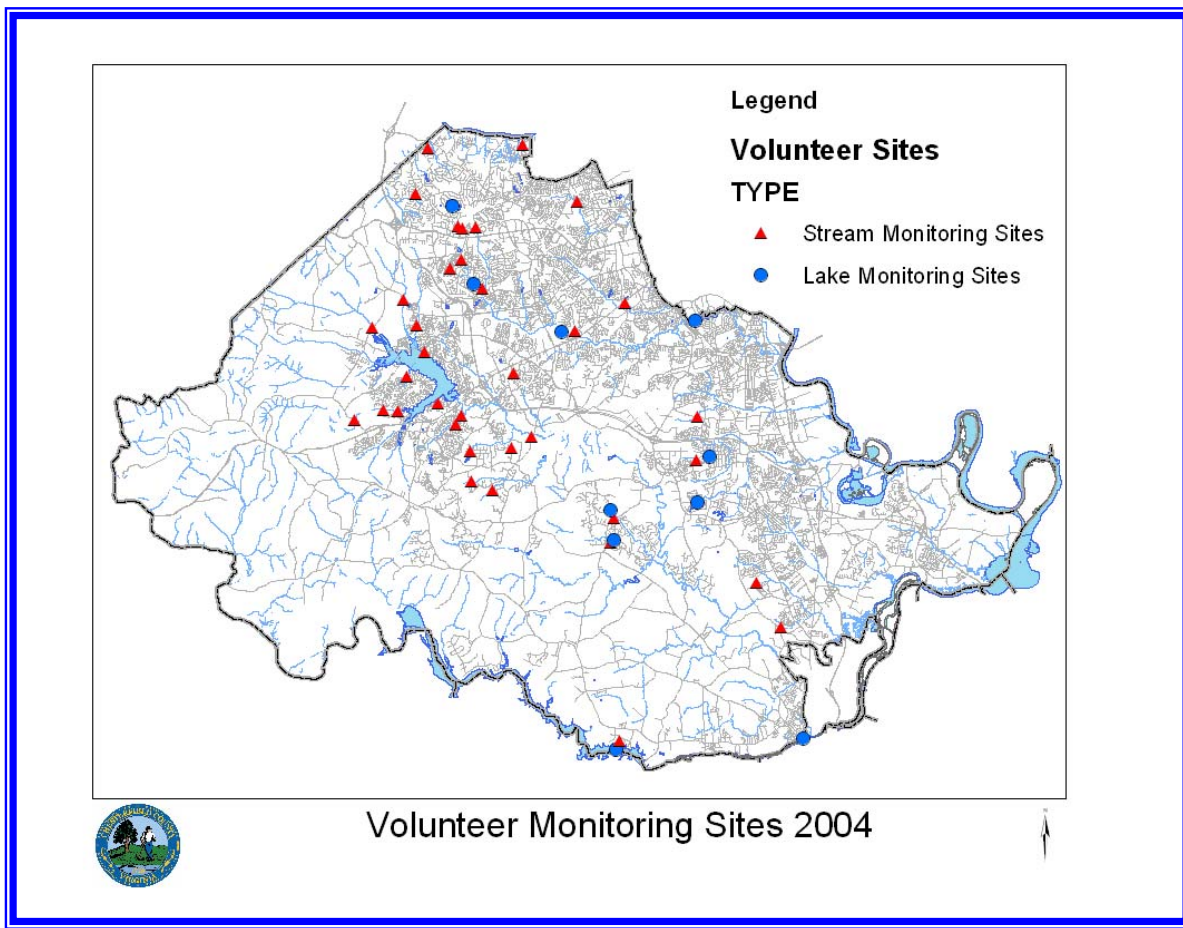
Volunteer Activities:

Volunteering in an Office of Water Quality program is an excellent way for a citizen to be able to “do something” for the environment. Volunteering can take several forms – either in the form of a long term commitment through water quality monitoring or during one time events such as cleanups and plantings. Both types of volunteering foster a sense of pride in our citizenship and encourage those citizens to take a personal role in their environment.

Volunteer Monitoring:

The volunteer monitoring data are currently being used to complement the data being collected as a part of the annual bioassessments, field monitoring and storm drain screenings. Objectives of the volunteer monitoring programs are to:

- Enhance public education activities and promote stewardship
- Involve a cross-section of County citizens
- Complement the monitoring requirements of the County’s VPDES permit
- Provide a team of citizen “stream watchers” who can identify water quality improvements or degradation in their community



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Stream Watchers:

Approximately 30 citizens monitored a total of 20 stream segments. These stream segments were located in 4 of the 10 major watersheds in Chesterfield County. This data is compiled in a database for trending and comparison of physical parameters are reported in the “Stream Watcher Annual Report”.

Lake Monitoring:

6 lakes participated in the Volunteer Lake Monitoring Program for the 2005 growing season (April 2005 – October 2005). These lakes are located in 4 of the 10 major watersheds in Chesterfield County. This data is compiled in a database for trending and comparison of physical and chemical parameters and can be found in the “Volunteer Lake Monitoring Annual Report”.

Friends of Chesterfield’s Riverfront Chemical Monitoring:

The Friends of Chesterfield’s Riverfront is currently administering a chemical monitoring volunteer program with technical support from the Alliance for the Chesapeake Bay. Currently six (6) sites are being chemically tested every week by a team of 14 volunteers. These sites were selected with input from OWQ. One of the volunteers enters data for the group and acts as the QA/QA. Data is housed in the Alliance for the Chesapeake Bay database and all data is accepted by the DEQ.

Volunteer Cleanup Efforts:

The OWQ actively participates in the James River Regional Cleanup, hosted by the James River Advisory Council. This event takes place the second weekend of June and attracts over 300 citizens in Chesterfield County. The county offers 3 -4 sites in various locations along the James River and its tributaries for citizens. Over 300 bags of trash were removed by the volunteers at this one day event. The OWQ also hosts targeted stream cleanups as the need arises. For example, a community cleanup was held along Pocoshock Creek after staff identified an illegal dumping area. Local businesses of the watershed donated lunches and citizens from the watershed attended the event.

Volunteer Riparian Buffer Plantings:

Riparian buffers are among one of the most valuable resources in protecting water quality. Unfortunately, many riparian buffers have been altered and are not functioning to their full potential. Several riparian buffers in Chesterfield County have been restored with the aid of volunteers. These projects were funded by a Chesapeake Bay Small Watershed Grant and volunteers performed the actual planting with the aid of Master Gardeners for planting quality. In addition to these sites performing an ecological function, they also have educational signage and are located at parks for maximum educational visibility.

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Volunteer Riparian Buffer Monitoring:

The Volunteer Riparian Buffer Monitoring program is the newest volunteer program and was implemented in May 2006. This program tracks the progress of restored riparian buffers in the county. Funds have been secured for this program from a National Fish and Wildlife Foundation Chesapeake Bay Small Watershed Grant. Organizations will adopt a riparian buffer and make yearly surveys, gather plant survival data and take photographs.

Storm Drain Marking:

The Storm Drain Marking Program was piloted by purchasing two thousand markers with funding from the Chesapeake Bay Small Watershed Grant administered by the National Fish and Wildlife Foundation. These markers include the name of the river, stream or reservoir to which the area drains as well as the anti-pollution message of “No Dumping!” and the County’s illicit discharge hotline number. After a successful pilot period, Chesterfield County received a second grant to purchase an additional 10,500 markers and expand the program countywide. Various groups have participated in this program including local schools, shopping centers and scout groups. When utilized as a scout project, an “educational component” is encouraged. The scout is encouraged to research nonpoint source pollution and develop educational materials for the community. These activities will not only educate the citizens and build communication skills for the youth, but also ensure success in markers being left on the storm drains. To date, approximately 3000 markers have been applied in over 400 neighborhoods. This covers six of the ten major watersheds in Chesterfield County.

Upper Swift Creek:

All of the above mentioned categories of education and outreach would be valuable to implement in the Upper Swift Creek, but a targeted education & outreach approach with a strong volunteer base would have the greatest impact. Publications and programs should be developed to specifically address the challenges and issues of the Upper Swift Creek Watershed, stressing the importance of protecting the Swift Creek Reservoir as a primary drinking water source. The citizens of this watershed should have a heightened awareness of the watershed in which they live and their personal effects on the water quality. This can be accomplished by working the various audiences. Several ideas include: working with the CCPS to develop a special curriculum for schools in the USC, develop a county-sponsored volunteer program specifically for watershed residents and to encourage homeowners associations to include water quality measures such as RPA language in their covenants. The citizens of the Upper Swift Creek Watershed need to feel that they are supported and encouraged by Chesterfield County in their efforts to maintain and improve the environmental resources.